

### **ABSTRACT OF THE DISCLOSURE**

A data processing system 2 supporting interrupt handling is provided with an  
5 interrupt controller 24. The interrupt controller is responsive to save state data when  
interrupt processing is commenced by pre-emption of existing processing, whether  
that be background processing or another interrupt. If a further interrupt is required to  
be executed immediately after the interrupt which triggered the pre-emption, then the  
speed with which interrupt processing can be started is advantageously increased if  
10 that subsequent interrupt processing is performed without restoring and then resaving  
the original state data. The interrupts in this arrangement can be considered to be  
chained together without intervening save and restore operations.

[Figure 7]